SAFETY INFORMATION
Technical Bulletin No. 006

GS Elektromedizinische Geräte
G. Stemple GmbH
Hauswiesenstraße 26
D-86916 Kaufering
Tel. +49 8191 65722-0
Fax +49 8191 65722-22
info@corpuls.com
www.corpuls.com

No.	Target audience	Date	Number of pages
006	All users	2010-04-06	7
Affected products	Serial numbers / Lot identification	Software / Firmware	
corpuls³	User Manual	Pertaining to software version 1.4.0 ; 1.5.0 und 1.6.0	

Dear Sir or Madam,

we would like to inform you via this letter about an amendment to the user manual of the **corpuls³** defibrillator/monitoring system.

This letter will contain information on:

- the reason for the amendment and on possible consequences,
- the measures you have to take as user of the device to reduce implications of the problem.

This applies to user manuals pertaining to the software versions 1.4.0 ; 1.5.0 and 1.6.0 of the **corpuls³** series, independent of the configuration of the devices.

Please find the amendment as a separate annex to this letter or on our homepage.

Please read this customer information carefully and return the filled in and signed confirmation letter (Annex B) to GS until **2010-04-30** at the latest.

1. Error description

There has been one reported case that the user did not react correctly to the message „Pairing failed" and that this faulty module combination was used on a patient. (Cause for the pairing request of the device was a new module combination after servicing the device).

Consequently, the patient box did not start correctly.

At the attempt to switch off the **corpuls^3** as a compact device, the message „Check modules" was not interpreted correctly neither.

There is no information available about the possible effects of this incident on the patient.

Missing instructions in the summary list of the user manual might be the cause for the wrong reaction of the crew to the warning messages.

2. Precondition for the Ooccurrence of the Error

When a new module is integrated into the device combination of the **corpuls^3** (e.g. the patient box is transferred with the patient into another vehicle), device data have to be exchanged via the infrared interface so that the radio connection can function properly.

If this procedure was carried out correctly, the message „Pairing successful" appears. If errors have occurred, (e.g. due to foreign bodies on the infrared interfaces) the message „Pairing failed" is shown on the monitoring unit. Description in chapter „3.2.1 Connection Authorisation (Pairing)" of the user manual.

If the error is not eliminated it may occur that the patient box or the defibrillator unit of the **corpuls^3** is not switched off. The message „Check modules" always appears if the patient box or the defibrillator unit are still in operation while the monitoring unit is already switched off. This is supposed to avoid unintended and unobserved draining of the batteries in the device. The measures to be taken in case of this error message are described below Fig. 4-10 (Fig. 4-11 in version 1.5) in chapter „4.2.2 Switching Off" of the user manual.

These are necessary and correctly functioning error messages of the device. It is essential that the user either knows the necessary corrective actions or has quick access to these in the user manual.

3. Potential Risk

The device cannot be operated correctly due to the missing (or incorrectly transmitted) device data. The transmission of medical data to the monitoring unit is faulty.

4. Safety Information

The users should be trained in the exchange of modules if this is provided for in the mission procedure.

After the **corpuls^3** has been serviced, the user should at least perform the daily check. Obviously, this has not been done as described in chapter „9 Maintenance and Tests" of the manual. If the connection test of the modules had been performed (for details see Table 4-1 in chapter 4.1.2), the device would have requested a new, correctly performed pairing procedure.

5. Troubleshooting Conspicuous Devices

If the message „Pairing failed" is shown, repeat the pairing procedure. If this does not remedy the problem, check the infrared interfaces of the device for foreign bodies and start the pairing procedure again. Please take notice that the monitoring unit and the patient box have to be paired first. The pairing procedure is then repeated with the defibrillator unit and this module combination.

If the device shows the message „Check modules" when switching off, separate the individual modules and check if all modules have been switched off correctly. If this is not the case, each module can be switched off correctly by keeping the green On/Off key depressed for 3 seconds. If this does not work, the switch-off can be forced by keeping the green On/Off key depressed for 8 seconds and thus interrupting the power supply of the module. However, a forced switch-off may result in data loss on the CF card.

6. Immediate measures

Please inform all users in your organisation once again about:

- The correct procedure when integrating new modules in the device combination,
- possible errors that can occur doing so and how to remedy them,
- the importance of the message „Check modules" when switching off the **corpuls^3** and
- the necessity to check the modules for correct switch-off, if the message was displayed.

For further improvement and to assist the user, the short manual should be carried along with the device.

7. Corrective Measures of the Manufacturer

Complementing the user manual in chapter „10 Procedure in Case of Malfunctions" with the missing alarm messages, their meaning and possible corrective measures to be taken.

Please file this amendment into your user manual version 1.4.0 ; 1.5.0 and 1.6.0.

8. Deadline

Briefing the users should be effected immediately by appropriate measures (e.g. via e-mail or by posting this letter and the user manual amendment at the bulletin board).

Please return the filled in confirmation letter (Annex B) to GS until **2010-04-30** at the latest.

We thank you for your understanding for the realisation of these corrective measures and apologise for the inconveniences. For further questions, please contact your authorised **corpuls®** sales and service partner (see also annex C or www.corpuls.com).

Contact person of the manufacturer for questions:

Dipl.-Ing. (FH) Axel Bischoff

VP Product Management
Leiter Produktmanagement

Tel.: +49 (0) 81 91 6 57 22 0
Fax: +49 (0) 81 91 6 57 22 22
E-Mail: md-vigilance@corpuls.com

Kind regards
GS Elektromedizinische Geräte G. Stemple GmbH

[redacted]

Günter Stemple
Managing Director
Geschäftsführer

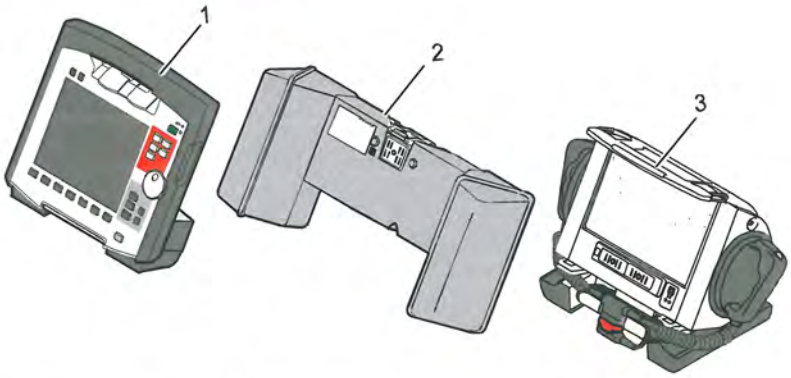
Klaus Stemple
General Manager R&D/Production
Geschäftsführer F&E/Fertigung

Axel Bischoff
VP Product Management
Leiter Produktmanagement

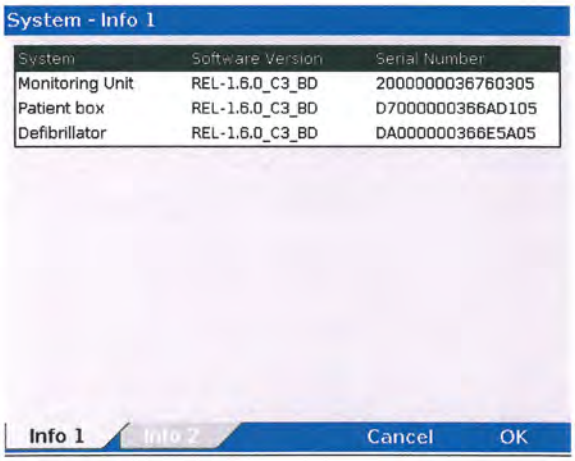
Annex A

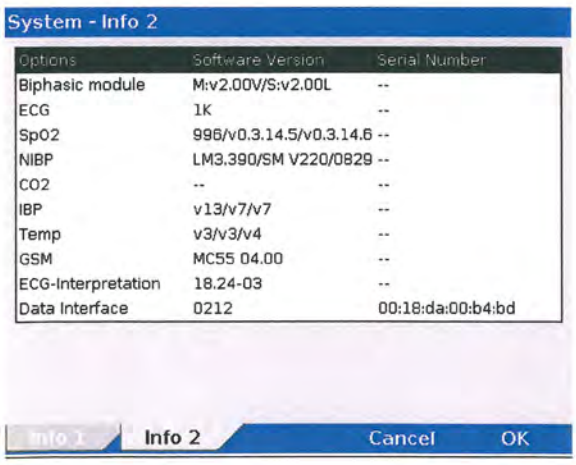
Illustration of the device combination **corpuls³**

1 – Monitoring unit
2 – Patient box
3 – Defibrillator



Rating plates with position of the serial numbers





Annex B

Confirmation form

Please mark with a cross ALL fields that apply to your company.

- ☐ We have read and understood the safety information of GS Elektromedizinische Geräte G. Stemple GmbH of 2010-04-06.

- ☐ We have informed our users in an appropriate way about the contents of this safety information and the amendment to the user manual.

To be filled in by the customer (please print):

Organisation: _____

Address: _____

Location: _____ Country: _____

Name: _____ First Name: _____

Mr/Ms/Title: _____ Fax: _____

Phone: _____ Company stamp:

E-Mail: _____

Date/Signature: _____

Please return this confirmation form until 2010-04-30 at the latest to:
GS Elektromedizinische Geräte G. Stemple GmbH, Hauswiesenstrasse 26, D-86916 Kaufering
Fax: + 49 8191 65722 - 22

Annex C

Authorised **corpuls®** sales and service partners

Please consult our homepage for international sales and service addresses:

www.corpuls.com

10 Procedure in Case of Malfunctions

10.3 Amendment to Alarm Messages

The following alarm messages can be shown on the display (in alphabetical order*):

* Due to translation, the sequence of the alarm messages in English differs from that in German:

Alarm meldungmessage	Explanation/measuresErläuterung/Maßnahme
Alarm confirmed; [TEXT]	Event with time stamp in the protocol that an occurred alarm has been confirmed by the user.
Alarm suspension: [NUMBER] sec	The alarm suspension is activated. The count-down shows the remaining time in seconds until the alarm suspension ends automatically.
Biphasic module selftest error Defib selftest error (P-Box)	▪ The **corpuls³** is possibly not functioning correctly and must not be used. ▪ Contact sales and service partners.
Check pacer	▪ The pacer is stimulating, but there is no connection between the monitoring unit and the defibrillator/pacer. ▪ The wireless communication between the patient box and the monitoring unit/defibrillator has been interrupted or could not be established: Make sure that the distance between the modules is not more than 10 m and that no barriers are compromising the wireless connection. If necessary, use the **corpuls³** as compact device. Communication between the patient box and the monitoring unit/defibrillator has been interrupted or could not be established: Check if one of the two infrared interfaces is covered or dirty.
CO2 apnoea CO2 apnoea (P-Box)	▪ An apnoea has been detected. ▪ Check respiration.
Confirm alarms	After the user has acknowledged the alarm messages contained in the following alarm list and has taken corresponding measures on the patient, those can be confirmed.
Defibrillator failure (4)	▪ The **corpuls³** is possibly not functioning correctly and must not be used. ▪ Contact sales and service partners.
Defibrillator temperature high Defib temp. high (P-Box)	▪ The defibrillator was very frequently charged within a short period. ▪ Avoid too frequent internal discharges.
Error SpO2 mod(ule) Error CO2 module Error temp. mod. Error IBP module	▪ The module mentioned is faulty. ▪ Contact sales and service partners.

Alarm meldungmessage	Explanation/measuresErläuterung/Maßnahme
Failure HES data transmission HES failure (P-box)	▪ An error occurred during data transmission of the ECG measuring and interpretation software HES®. ▪ Data transmission was not successful. ▪ Repeat procedure. ▪ If the data transmission fails repeatedly, contact sales and service partners.
FAX transmission failed (%d)	▪ Fax transmission was not successful ▪ Repeat procedure. ▪ Contact sales and service partners
Module restarts	▪ Alarm message shown on the display of the patient box. ▪ The patient box restarts due to a software error.
No ECG cable	▪ The **corpuls³** is in AED mode with connected shock paddles and the 4 pole ECG monitoring cable is not connected to the patient box. ▪ Connect the 4 pole ECG monitoring cable.
No ECG cable (PACER)	▪ The pacer is stimulating, but there is no 4 pole ECG monitoring cable connected or individual ECG electrodes are loose. ▪ Check if the 4 pole ECG monitoring cable is connected correctly to the patient box. ▪ Check ECG electrodes. ▪ Make sure that all contact clips are connected correctly to the electrodes and/or all ECG electrodes are correctly placed on the patient's skin.
No GSM PIN configured	▪ The PIN belonging to the SIM card has not been configured. ▪ No SIM card present. ▪ Insert a SIM card and configure the PIN.
Paddle interface error Error in device (PIF)	▪ The **corpuls³** is not functioning correctly and must not be used. ▪ Contact sales and service partners.
Pairing result:	Status message in the protocol after connection authorisation (Pairing) has taken place.
Paper jam	--
Refill printer paper	--
Replace battery (defib) Replace battery (monitor) Replace battery (P-Box)	▪ The **corpuls³** is possibly not functioning correctly and must not be used. ▪ Contact sales and service partners.
Self test failed Self test failed (P-Box)	▪ The **corpuls³** is possibly not functioning correctly and must not be used. ▪ Contact sales and service partners.
Self test failed	▪ The **corpuls³** is possibly not functioning correctly and must not be used. ▪ Contact sales and service partners.

SYND CLK error (P-Box) SYND CLK error (Defib)	▪ Automatic synchronisation in manual defibrillation mode does not work. No shock can be delivered. ▪ The **corpuls^3** is not functioning correctly and must not be used. ▪ Contact sales and service partners.
Time/Date inv. (P-Box)	▪ Alarm message shown on the display of the patient box. ▪ The configured time or the date is invalid. ▪ Set the correct time/date
Time/Date invalid	▪ The configured time or the date is invalid. ▪ Set the correct time/date.

Table 10-22 Amendment to alarm message

10.4 Amendment to Notifications and Information in the Protocol

The notifications marked by `- -` do not require further explanation, as they are self-explanatory. The measure to be taken is to follow the instruction given in the notification. The following notification texts can be shown on the display or are printed out in the protocol (in alphabetical order*):

* Due to translation, the sequence of the alarm messages in English differs from that in German

Notification in the message line and information in the protocol	**Explanation/measure**
activated (AED)	Time stamp and status indication in the protocol that the defibrillator has been activated in AED mode.
activated (MANUAL)	Time stamp and status indication in the protocol that the defibrillator has been activated in manual mode.
Charging not possible	▪ A technical error occurred. ▪ The temperature of the generator has exceeded a limit value due to a high amount of discharges. ▪ Allow the system to cool down in rest periods. ▪ If the error persists, contact sales and service partners.
Check modules	▪ If there is no connection between the monitoring unit and the patient box and/or the defibrillator/pacer at the time of switch-off or if there is a timing problem between the modules, this is communicated to the user by a message on the display. ▪ In this case, disconnect the the modules and check if all modules are switched off. If this is not so, switch off the respective modules via the On/Off key.

Notification in the message line and information in the protocol	Explanation/measure
Check therapy electrodes	▪ The therapy electrodes are not connected correctly to the therapy master cable. ▪ Check the connection of the plugs and adjust if necessary. ▪ If the message persists, contact sales and service partners.
Circuit open - Check pacer electrodes	▪ The corPatch electrodes are not connected correctly to the patient or they have a too high resistance to the patient's skin. Stimulation is not possible. ▪ Check the expiry date of the electrodes, if they are dried out and if they are placed correctly on the patient.
Code changed	Confirmation that the access code has been successfully changed.
Code mismatch - Retry?	▪ The verification of the new access code did not match the earlier entry. ▪ To repeat the process, confirm the prompt and enter the access code again.
Configuration loaded	--
Configuration reset	--
Configuration stored	--
Connect ECG cable	--
Connect pacer cable	User prompt to connect the therapy master cable to the therapy electrodes.
Connect therapy electrodes	--
Connected, Sending fax	▪ Status message during fax transmission ▪ Connection to required number has been established. ▪ Fax transmission is active.
D-ECG ([NUMBER]) not saved ([NUMBER])	The recorded D-ECG could not be saved because ▪ the CF card is possibly full, ▪ the CF card is possibly not inserted correctly ▪ the CF card is possibly faulty or ▪ the writing process onto the CF card has failed. ▪ After deleting or exchanging the CF card, repeat the process. If the error persists, contact sales and service partners.
D-ECG ([NUMBER]) saved	▪ A D-ECG has been saved. ▪ The number of the D-ECG is shown in brackets.
D-ECG fax sent	Confirmation that the D-ECG has been sent via fax.

Notification in the message line and information in the protocol	Explanation/measure
Defibrillation only possible in manual defi mode	▪ User prompt to switch from AED mode to manual defibrillation mode. ▪ The therapy electrodes used are not authorised for use in AED mode.
Defibrillator activated [TEXT]	▪ Event in the protocol indicating that the defibrillator mode has been activated. ▪ Meaning of the parameter: manual or AED
Defibrillator analysis result; >>> Shock not recommended	Event in the protocol, saving the result of the ECG analysis.
Defibrillator analysis result; >>> Shock recommended	Event in the protocol, saving the result of the ECG analysis.
Defibrillator deactivated	▪ Event in the protocol indicating that the defibrillator mode has been deactivated.
DEMO mode ON	▪ The DEMO mode is active. ▪ Check if curves and parameters are displayed.
Dialing... (signal level: [NUMBER]%)	▪ Dialing process of the fax option ▪ Display of the signal strength of reception.
Do not touch or move patient	▪ The ECG analysis is being performed. ▪ Do not touch or move patient. ▪ Follow the instructions on the display.
Enter code: [NUMBER] [NUMBER] [NUMBER] [NUMBER]	User prompt to enter the access code.
Enter new code: [NUMBER] [NUMBER] [NUMBER] [NUMBER]	User prompt to enter a new access code.
Error GSM module	▪ The GSM module is probably faulty. ▪ Contact sales and service partners.
Error in device (BIM)	▪ The **corpuls³** is not functioning correctly and must not be used. ▪ Contact sales and service partners.
Error in device (DEFI)	▪ The **corpuls³** is not functioning correctly and must not be used. ▪ Contact sales and service partners.
Error in device (MAN-BIM)	▪ The **corpuls³** is not functioning correctly and must not be used. ▪ Contact sales and service partners.
Error in device (PIF)	▪ The **corpuls³** is not functioning correctly and must not be used. ▪ Contact sales and service partners.
Error in device (PIF)	▪ The **corpuls³** is not functioning correctly and must not be used. ▪ Contact sales and service partners.

Notification in the message line and information in the protocol	Explanation/measure
Event recorded	Confirmation that an event has been recorded.
Failure HES data transmission HES failure (P-box)	▪ An error occurred during data transmission of the ECG measuring and interpretation software HES®. ▪ Data transmission was not successful. ▪ Repeat procedure. If the data transmission fails repeatedly, contact sales and service partners.
Fax transfer failure	▪ An error has occurred during the fax transmission. ▪ The fax has not been transferred. ▪ Repeat fax transfer.
Fax transfer finished ([NUMBER] page(s) sent)	Confirmation that the fax has been successfully transferred with the indicated amount of pages.
GSM error: Connection not possible	▪ Possibly a wrong fax number has been dialed. ▪ Repeat dialing.
GSM error: Line is busy	▪ The dialed fax line is busy. ▪ Try to establish the fax connection at a later point in time.
GSM error: Lost modem control	▪ Switch off the **corpuls³** and switch on again. ▪ If the message text is displayed permanently, contact sales and service partners.
GSM error: Network not available	▪ Signal strength of reception is too low. No connection can be established to the mobile communications network. ▪ If possible, improve reception according to location. ▪ Repeat procedure, possibly at a later time.
GSM error: No SIM card	▪ Check SIM card. ▪ Insert SIM card.
GSM error: SIM card error	▪ Check SIM card. ▪ Try re-inserting SIM card. ▪ If the error cannot be eliminated, contact the mobile communications operator or the sales and service partners.
GSM error: SIM card locked	▪ Check SIM card. ▪ Enter safety code for unlocking the SIM card (see instructions of operating company, e.g. Personal Unblocking Key (PUK)). ▪ If the SIM card cannot be unlocked, contact first the mobile communications operator and then the sales and service partners.

GSM error: Wrong GSM PIN	▪ The personal identification number (PIN) entered is wrong. ▪ Repeat.
High impedance	▪ The electrical resistance of the patient (impedance) is to high for the selected settings. An intensity for stimulation has been selected that cannot be reached with the impedance present. ▪ To perform a pacer therapy adaequate for the patient, a higher stimulation intensity must be selected. ▪ Increase intensity. ▪ Perform medical measures as needed.
IBP calibration failed	▪ Event in the protocol indicating that the calibration of the invasive pressure channel has failed. ▪ Repeat calibration of the indicated pressure channel.
Initialising GSM modem...	Status indication during fax transmission.
Invalid - Retry?	--
Keyboard locked	Keyboard lock has been engaged.
Keyboard locked - Keep key HOME pressed to unlock	--
Keyboard unlocked	Keyboard lock has been disengaged.
Logging onto network...	▪ Status message of fax transmission. ▪ The GSM module is logging onto the mobile communications network.
Mission end	Event in the protocol indicating the ending time of the device mission.
Mission start	Event in the protocol indicating the starting time of the device mission.
New code invalid - Retry?	User prompt to re-enter the new access code, if the repetition was wrong.
New module - Start pairing?	▪ Two modules have been connected that do not have a connection authorisation (Pairing). ▪ Confirm if these modules are to receive a connection authorisation and the existing connection authorisation should be deleted.
NIBP result: [NUMBER] / [NUMBER] ([NUMBER]) mmHg	▪ Result of the NIBP measurement in the protocol.

No connection to Defibrillator Unit	▪ The wireless communication between defibrillator and monitoring unit/patient box is interrupted or could not be established: Make sure that the distance between the modules is no more than 10 m and that no obstacles impede the wireless communication. If needed, use the **corpuls^3** as a compact device. ▪ The communication between the connected modules defibrillator and monitoring unit/patient box is interrupted or could not be established: Check if one of the infrared interfaces is covered or extremely dirty.
No connection to Patient Box	▪ The wireless communication between patient box and monitoring unit/defibrillator is interrupted or could not be established: Make sure that the distance between the modules is no more than 10 m and that no obstacles impede the wireless communication. If needed, use the **corpuls^3** as a compact device. ▪ The communication between the connected modules patient box and monitoring unit/defibrillator is interrupted or could not be established: Check if one of the infrared interfaces is covered or extremely dirty.
No ECG cable in DEMAND mode	For operating the pacer in DEMAND mode the 4 pole ECG monitoring cable has to be connected to the patient and to the **corpuls^3**.
Pacer active	The pacer is stimulating.
Pacer active - Continue?	Confirmation prompt asking if the stimulation should be interrupted and the **corpuls^3** should switch to manual or AED defibrillation mode.
Pacer active - D-ECG not available	▪ The pacer of the **corpuls^3** is activated and the selected intensity is more than 0 mA. ▪ A D-ECG cannot be performed under these circumstances.
Pacer active - Power OFF?	--
Pacer continue	--
Pacer error - Pacing OFF	▪ An error occurred during pacer therapy. ▪ The pacer is switched off. Stimulation is interrupted. ▪ Treat patient and take measures as needed. ▪ Contact sales and service partners.
Pacer mode [TEXT] selected	Event in the protocol, recording the switch between the pacer modes FIX and DEMAND. (No alarm!)
Pacer OFF	Confirmation that the pacer has been switched off and is not stimulating.

Pacer ON [NUMBER]/min, [NUMBER] mA, mode [TEXT]	▪ Status indication of a performed pacer therapy in the protocol. ▪ The stimulation frequency, intensity and the selected pacer mode are indicated.
Pairing failed - Retry?	▪ The connection between the modules could not be established. Connection authorisation (Pairing) has failed. ▪ Pairing has to be performed again so that the modules can be used together. ▪ Confirmation of the question if the pairing should be performed again is necessary. ▪ Confirm in order to repeat pairing. ▪ For further details see chapter 3.2.1. ▪ If pairing fails repeatedly, the **corpuls^3** is possibly not functioning correctly and must not be used. Contact sales and service partners.
Pairing failed - Software version conflict	▪ Connection authorisation (Pairing) has failed. ▪ The required modules cannot be connected due to different software versions. ▪ For further details see chapter 3.2.1. ▪ Contact sales and service partners.
Pairing successful	▪ The connection authorisation has been issued successfully. ▪ The modules can be used together.
Perform CPR	▪ Perform cardio-pulmonary resuscitation (CPR). ▪ Follow the instructions on the display.
Recording failed - Check CF card	▪ Data recording is not possible. ▪ Check if the CompactFlash® card is inserted correctly.
Re-enter new code: [NUMBER] [NUMBER] [NUMBER] [NUMBER]	User prompt to re-enter the new access code.
Reset user code?	Confirmation prompt asking if the access code of the user level should be reset to factory settings.
Select Energy	--
Sending fax (page [NUMBER])...	▪ Status indication during fax transmission. ▪ The number of already sent pages is shown in brackets.
Sending fax...	Status indication during fax transmission.
Shock [NUMBER] J ([NUMBER] J), [NUMBER] Ohm ([TEXT])	▪ Time stamp and status indication of a performed defibrillation in the protocol. ▪ The selected energy, the effectively released energy (in brackets) and the impedance in Ohm are indicated. ▪ Indication of the defibrillation mode used.

Shock not recommended	▪ The result of the ECG analysis indicates that a shock is not recommended. ▪ Take measures as needed. If necessary, continue cardio-pulmonary resuscitation.
Shock performed	▪ Defibrillation energy has been released. ▪ Check vital signs and continue cardio-pulmonary resuscitation if necessary.
Short circuit - Check electrodes	▪ The therapy electrodes have an electric connection (short circuit). ▪ Make sure that the therapy electrodes do not touch.
SIM card authorisation...	▪ Status message of fax transmission. ▪ Wait for authorisation of the SIM card in the mobile communications network.
Start ECG	Starting time of the recorded ECG in the protocol.
Start new mission?	By confirming, a new data record is created on the CF card.
Stop ECG	Ending time of the recorded ECG in the protocol.
System Power Down in [NUMBER] sec	Count-down indicating the remaining time until the system shuts down.
Temperature measurement failed	▪ Temperature measurement could not be performed correctly. Check temperature sensor and its correct placement on the patient.
Test-resistor temperatur high Resistor temp. high (P-Box)	▪ Defibrillation was performed on the test contacts too frequently in succession. Avoid further defibrillations on the test contacts.
Therapy eletrodes loose	Check the correct placement of the corPatch electrodes on the patient.
Unlock keyboard?	Confirmation prompt asking if the keyboard lock should be disengaged.
User [TEXT] logged in successfully	Notification which user level has been logged in.

Table 10-23 Amendment to notifications in the message line

10 Procedure in Case of Malfunctions

10.3 Amendment to Alarm Messages

The following alarm messages can be shown on the display (in alphabetical order*):

* Due to translation, the sequence of the alarm messages in English differs from that in German

Alarm message	Explanation/measures
Alarm suspension: [NUMBER] s	The alarm suspension is activated. The count-down shows the remaining time in seconds until the alarm suspension ends automatically.
Biphasic module selftest error Defib selftest error (P-Box)	▪ The corpuls³ is possibly not functioning correctly and must not be used. ▪ Contact sales and service partners.
Check pacer	▪ The pacer is stimulating, but there is no connection between the monitoring unit and the defibrillator/pacer. ▪ The wireless communication between the patient box and the monitoring unit/defibrillator has been interrupted or could not be established: Make sure that the distance between the modules is not more than 10 m and that no barriers are compromising the wireless connection. If necessary, use the corpuls³as compact device. ▪ Communication between the patient box and the monitoring unit/defibrillator has been interrupted or could not be established: Check if one of the two infrared interfaces is covered or dirty.
CO2 apnoea CO2 apnoea (P-Box)	▪ An apnoea has been detected. ▪ Check respiration.
Confirm alarms	After the user has acknowledged the alarm messages contained in the following alarm list and has taken corresponding measures on the patient, those can be confirmed.
Defibrillator failure (4)	▪ The device is possibly not functioning correctly and must not be used. ▪ Contact sales and service partners.
Defibrillator failure (X) Defib failure (X) (P-box)	▪ The “X” stands for a failure number from 1 to 3 ▪ The corpuls³ is possibly not functioning correctly and must not be used. ▪ Contact sales and service partners.
Defibrillator temperature high Defib temp. high (P-Box)	▪ The defibrillator was very frequently charged within a short period. ▪ Avoid too frequent internal discharges.

Error GSM module	▪ The GSM module is probably faulty. ▪ Contact sales and service partners.
Error SpO2 mod(ule) Error CO2 module Error temp. mod. Error IBP module	▪ The module mentioned is faulty. ▪ Contact sales and service partners.
Module restarts	▪ Alarm message shown on the display of the patient box. ▪ The patient box restarts due to a software error.
No ECG cable	▪ The **corpuls^3** is in AED mode with connected shock paddles and the 4 pole ECG monitoring cable is not connected to the patient box. ▪ Connect the 4 pole ECG monitoring cable.
No ECG cable (PACER)	▪ The pacer is stimulating, but there is no 4 pole ECG monitoring cable connected or individual ECG electrodes are loose. ▪ Check if the 4 pole ECG monitoring cable is connected correctly to the patient box. ▪ Check ECG electrodes. ▪ Make sure that all contact clips are connected correctly to the electrodes and/or all ECG electrodes are correctly placed on the patient's skin.
No GSM PIN configured	▪ The PIN belonging to the SIM card has not been configured. ▪ No SIM card present. ▪ Insert a SIM card and configure the PIN.
Paddle interface error	▪ The **corpuls^3** is not functioning correctly and must not be used. ▪ Contact sales and service partners.
Replace battery (defib) Replace battery (monitor) Replace battery (P-Box)	▪ The **corpuls^3** is possibly not functioning correctly and must not be used. ▪ Contact sales and service partners.
Self test failed Self test failed (P-Box)	▪ The **corpuls^3** is possibly not functioning correctly and may no longer be used. ▪ Contact sales and service partners.
SYND CLK error (Defib) SYND CLK error (P-box)	▪ Automatic synchronisation in manual defibrillation mode does not work. No shock can be delivered. ▪ Contact sales and service partners.
Temperature measurement failed	▪ Temperature measurement could not be performed correctly. ▪ Check temperature sensor and its correct placement on the patient.
Test-resistor temperatur high Resistor temp. high (P-Box)	▪ Defibrillation was performed on the test contacts too frequently in succession. ▪ Avoid further defibrillations on the test contacts.
Therapy electrodes loose	Check the correct placement of the corPatch electrodes on the patient.

Time/Date inv. (P-Box)	▪ Alarm message shown on the display of the patient box. ▪ The configured time or the date is invalid. ▪ Set the correct time/date
Time/Date invalid	▪ The configured time or the date is invalid. ▪ Set the correct time/date.

Table 10-21 Amendment to alarm messages

10.4 Amendment to Notifications and Information in the Protocol

The notifications marked by `- -` do not require further explanation, as they are self-explanatory. The measure to be taken is to follow the instruction given in the notification. The following notification texts can be shown on the display or are printed out in the protocol (in alphabetical order*):

* Due to translation, the sequence of the alarm messages in English differs from that in German

Notification in the message line and information in the protocol	**Explanation/measure**
[Monitoring unit] powered off [Patient box] powered off [Defibrillator/pacer] powered off	Event in the protocol indicating that the respective module has been switched off.
[Monitoring unit] powered on [Patient box] powered on [Defibrillator/pacer] powered on	Event in the protocol indicating that the respective module has been switched on.
activated (AED)	Time stamp and status indication in the protocol that the defibrillator has been activated in AED mode.
activated (MANUAL)	Time stamp and status indication in the protocol that the defibrillator has been activated in manual mode.
Alarm confirmed; [TEXT]	Event with time stamp in the protocol that an occurred alarm has been confirmed by the user.

Charging not possible	▪ A technical error occurred. ▪ The temperature of the generator has exceeded a limit value due to a high amount of discharges. ▪ Allow the system to cool down in rest periods. ▪ If the error persists, contact sales and service partners.
Check modules	▪ If there is no connection between the monitoring unit and the patient box and/or the defibrillator/pacer at the time of switch-off or if there is a timing problem between the modules, this is communicated to the user by a message on the display. ▪ In this case, disconnect the the modules and check if all modules are switched off. If this is not so, switch off the respective modules via the On/Off key.
Check therapy electrodes	▪ The therapy electrodes are not connected correctly to the therapy master cable. ▪ Check the connection of the plugs and adjust if necessary. ▪ If the message persists, contact sales and service partners.
Code changed	Confirmation that the access code has been successfully changed.
Code mismatch - Retry?	▪ The verification of the new access code did not match the earlier entry. ▪ To repeat the process, confirm the prompt and enter the access code again.
Configuration loaded	--
Configuration reset	--
Configuration stored	--
Connect ECG cable	--
Connect pacer cable	User prompt to connect the therapy master cable to the therapy electrodes.
Connected, Sending fax	▪ Status message during fax transmission ▪ Connection to required number has been established. ▪ Fax transmission is running.
Connection not possible	▪ The number selected with the fax option cannot be dialed. ▪ If possible, improve reception according to location. ▪ Repeat procedure, possibly at a later time.

D-ECG ([NUMBER]) saved	▪ Event in the protocol indicating that a D-ECG has been saved. ▪ The number of the D-ECG is shown in brackets.
D-ECG fax sent	Confirmation that the D-ECG has been sent via fax.
D-ECG recorded	Confirmation that the D-ECG has been fully displayed in the preview.and saved.
Defibrillation only possible in manual defi mode	▪ User prompt to switch from AED mode to manual defibrillation mode. ▪ The therapy electrodes used are not authorised for use in the AED mode.
Defibrillator activated [TEXT]	▪ Event in the protocol indicating that the defibrillator mode has been activated. ▪ Meaning of the parameter: manual or AED
Defibrillator analysis result; >>> Shock not recommended	Event in the protocol, saving the result of the ECG analysis.
Defibrillator analysis result; >>> Shock recommended	Event in the protocol, saving the result of the ECG analysis.
Defibrillator deactivated	Event in the protocol indicating that the defibrillator mode has been deactivated.
DEMO mode ON	▪ The DEMO mode is active. ▪ Check if curves and parameters are displayed.
Dialing... (signal level: [NUMBER]%)	▪ Dialing process of the fax option ▪ Display of the signal strength of reception.
Do not touch or move patient	▪ The ECG analysis is being performed. ▪ Do not touch or move patient. ▪ Follow the instructions on the display.
Enter code: [NUMBER] [NUMBER] [NUMBER] [NUMBER]	User prompt to enter the access code.
Enter new code: [NUMBER] [NUMBER] [NUMBER] [NUMBER]	User prompt to enter a new access code.
Error in device (BIM)	▪ The **corpuls³** is not functioning correctly and must not be used. ▪ Contact sales and service partners.
Error in device (DEFI)	▪ The **corpuls³** is not functioning correctly and must not be used. ▪ Contact sales and service partners.
Error in device (MAN-BIM)	▪ The **corpuls³** is not functioning correctly and must not be used. ▪ Contact sales and service partners.
Event recorded	Confirmation that an event has been recorded.

Event recorded ([NUMBER].wav)	▪ Event in the protocol that an event has been recorded. ▪ There is a voice recording pertaining to the respective event.
Failure HES data transmission HES failure (P-box)	▪ An error occurred during data transmission of the ECG measuring and interpretation software HES®. ▪ Data transmission was not successful. ▪ Repeat procedure. ▪ If the data transmission fails repeatedly, contact sales and service partners.
Fax transfer failure	▪ An error has occurred during the fax transmission. ▪ The fax has not been transferred. ▪ Repeat fax transfer.
Fax transfer finished ([NUMBER] page(s) sent)	Confirmation that the fax has been successfully transferred with the indicated amount of pages.
GSM error: Connection not possible	▪ Possibly a wrong fax number has been dialed. ▪ Repeat dialing.
GSM error: Line is busy	▪ The dialed fax line is busy. ▪ Try to establish the fax connection at a later point in time.
GSM error: Lost modem control	▪ Switch off the **corpuls^3** and switch on again. ▪ If the message text is displayed permanently, contact sales and service partners.
GSM error: Network not available	▪ Signal strength of reception is too low. No connection can be established to the mobile communications network. ▪ If possible, improve reception according to location. ▪ Repeat procedure, possibly at a later time.
GSM error: No SIM card	▪ Check SIM card. ▪ Insert SIM card.
GSM error: SIM card error	▪ Check SIM card. ▪ Try re-inserting SIM card. ▪ If the error cannot be eliminated, contact the mobile communications operator or the sales and service partners.
GSM error: SIM card locked	▪ Check SIM card. ▪ Enter safety code for unlocking the SIM card (see instructions of operating company, e.g. Personal Unblocking Key (PUK)). ▪ If the SIM card cannot be unlocked, contact first the mobile communications operator and then the sales and service partners.

GSM error: Wrong GSM PIN	▪ The personal identification number (PIN) entered is wrong. ▪ Repeat.
High impedance	▪ The electrical resistance of the patient (impedance) is to high for the selected settings. An intensity for stimulation has been selected that cannot be reached with the impedance present. ▪ To perform a pacer therapy adaequate for the patient, a higher stimulation intensity must be selected. ▪ Increase intensity. ▪ Perform medical measures as needed.
IBP calibration failed ([NUMBER])	▪ Event in the protocol indicating that the calibration of the invasive pressure channel has failed. ▪ Repeat calibration of the indicated pressure channel.
Initialising GSM modem...	Status indication during fax transmission.
Invalid - Retry?	--
Keyboard locked	Keyboard lock has been engaged.
Keyboard locked - Keep key HOME pressed to unlock	--
Keyboard unlocked	Keyboard lock has been disengaged.
Line is busy	The dialed fax line is busy.
Logging onto network...	▪ Status message of fax transmission. ▪ The GSM module is logging onto the mobile communications network.
Mission end	Event in the protocol indicating the ending time of the device mission.
Mission start	Event in the protocol indicating the starting time of the device mission.
New code invalid - Retry?	User prompt to re-enter the new access code, if the repetition was wrong.
New module - Start pairing?	▪ Two modules have been connected that do not have a connection authorisation (Pairing). ▪ Confirm if these modules are to receive a connection authorisation and the existing connection authorisation should be deleted.
NIBP result: [NUMBER] / [NUMBER] ([NUMBER]) mmHg	Result of the NIBP measurement in the protocol.

No connection to Defibrillator Unit	▪ The wireless communication between defibrillator and monitoring unit/patient box is interrupted or could not be established: Make sure that the distance between the modules is no more than 10 m and that no obstacles impede the wireless communication. If needed, use the **corpuls^3** as a compact device. ▪ The communication between the connected modules defibrillator and monitoring unit/patient box is interrupted or could not be established: Check if one of the infrared interfaces is covered or extremely dirty.
No connection to Patient Box	▪ The wireless communication between patient box and monitoring unit/defibrillator is interrupted or could not be established: Make sure that the distance between the modules is no more than 10 m and that no obstacles impede the wireless communication. If needed, use the **corpuls^3** as a compact device. ▪ The communication between the connected modules patient box and monitoring unit/defibrillator is interrupted or could not be established: Check if one of the infrared interfaces is covered or extremely dirty.
No ECG cable	--
No ECG cable in DEMAND mode	For operation of the pacer in DEMAND mode the 4 pole ECG monitoring cable has to be connected to the patient and to the **corpuls^3**.
No SIM card	--
Pacer active	The pacer is stimulating.
Pacer active - Continue?	Confirmation prompt asking if the stimulation should be interrupted and the **corpuls^3** should switch to manual or AED defibrillation mode.
Pacer active - D-ECG not available	▪ The pacer of the **corpuls^3** is activated and the selected intensity is more than 0 mA. ▪ A D-ECG cannot be performed under these circumstances.
Pacer continue	--
Pacer error - Pacing OFF	▪ An error occurred during pacer therapy. ▪ The pacer is switched off. Stimulation is interrupted. ▪ Treat patient and take measures as needed. ▪ Contact sales and service partners.
Pacer mode [TEXT] selected	Event in the protocol, recording the switch between the pacer modes FIX and DEMAND.
Pacer OFF	Confirmation that the pacer has been switched off and is not stimulating.

Pacer ON [NUMBER]/min, [NUMBER] mA, mode [TEXT]	▪ Status indication of a performed pacer therapy in the protocol. ▪ The stimulation frequency, intensity and the selected pacer mode are indicated.
Pairing failed - Retry?	▪ The connection between the modules could not be established. Connection authorisation (Pairing) has failed. ▪ Pairing has to be performed again so that the modules can be used together. ▪ Confirmation of the question if the pairing should be performed again is necessary. ▪ Confirm in order to repeat pairing. ▪ For further details see chapter 3.2.1. ▪ If pairing fails repeatedly, the **corpuls³** is possibly not functioning correctly and must not be used. Contact sales and service partners.
Pairing failed - Software version conflict	▪ Connection authorisation (Pairing) has failed. ▪ The required modules cannot be connected due to different software versions. ▪ For further details see chapter 3.2.1. ▪ Contact sales and service partners.
Pairing result: [NUMBER]	Status message after connection authorisation (Pairing) in the protocol.
Pairing successful	▪ The connection authorisation has been issued successfully. ▪ The modules can be used together.
Paper jam	--
Perform CPR	Perform ventilation and cardiac massage (cardio-pulmonary resuscitation) for as long as the device shows the message "**Perform CPR**".
Power OFF?	▪ User prompt to switch off **corpuls³**. ▪ After confirmation the system shuts down.
Recording failed - Check CF card	▪ Data recording is not possible. ▪ Check if the CompactFlash® card is inserted correctly.
Re-enter new code: [NUMBER] [NUMBER] [NUMBER] [NUMBER]	User prompt to re-enter the new access code.
Refill printer paper	--
Reset user code?	Confirmation prompt asking if the access code of the user level should be reset to factory settings.
Select Energy	--
Select frequency	--
Select intensity	--
Select intensity/frequency	--
Select mode	User prompt to select the pacer mode.

Sending fax (page [NUMBER])...	▪ Status indication during fax transmission. ▪ The number of already sent pages is shown in brackets.
Sending fax...	Status indication during fax transmission.
Shock [NUMBER] J ([NUMBER] J), [NUMBER] Ohm ([TEXT])	▪ Time stamp and status indication of a performed defibrillation in the protocol. ▪ The selected energy, the effectively released energy (in brackets) and the impedance in Ohm are indicated. ▪ Indication of the defibrillation mode used.
Shock not recommended	▪ The result of the ECG analysis indicates that a shock is not recommended. ▪ Take measures as needed. If necessary, continue cardio-pulmonary resuscitation.
Shock performed	▪ Defibrillation energy has been released. ▪ Check vital signs and continue cardio-pulmonary resuscitation if necessary.
Shock recommended	▪ Defibrillation is recommended. ▪ Perform defibrillation immediately.
Short circuit - Check electrodes	▪ The therapy electrodes have an electric connection (short circuit). ▪ Make sure that the therapy electrodes do not touch.
SIM card authorisation...	▪ Status message of fax transmission. ▪ Wait for authorisation of the SIM card in the mobile communications network.
Start ECG	Starting time of the recorded ECG in the protocol.
Start new mission?	By confirming, a new data record is created on the CF card.
Stop ECG	Ending time of the recorded ECG in the protocol.
Switch off pacer?	--
System Power Down in [NUMBER] sec	Count-down indicating the remaining time until the system shuts down.
Unlock keyboard?	Confirmation prompt asking if the keyboard lock should be disengaged.

Table 10-22 Amendment to notifications in the message line

10 Procedure in Case of Malfunctions

10.3 Amendment to Alarm Messages

The following alarm messages can be shown on the display (in alphabetical order*):

* Due to translation, the sequence of the alarm messages in English differs from that in German

Alarm message/Notification	Explanation/measure
Alarm suspension: [NUMBER] s	The alarm suspension is activated. The count-down shows the remaining time in seconds until the alarm suspension ends automatically.
Biphasic module selftest error Defib selftest error (P-Box)	▪ The device is possibly not functioning correctly and must not be used. ▪ Contact sales and service partners.
Check pacer	▪ The pacer is stimulating, but there is no connection between the monitoring unit and the defibrillator/pacer. ▪ The wireless communication between the patient box and the monitoring unit/defibrillator has been interrupted or could not be established: Make sure that the distance between the modules is not more than 10 m and that no barriers are compromising the wireless connection. If necessary, use the **corpuls3** as compact device. ▪ Communication between the patient box and the monitoring unit/defibrillator has been interrupted or could not be established: Check if one of the two infrared interfaces is covered or dirty.
CO2 apnoea CO2 apnoea (P-Box)	▪ An apnoea has been detected. ▪ Check respiration.
Confirm alarms	After the user has acknowledged the alarm messages contained in the following alarm list and has taken corresponding measures on the patient, those can be confirmed.
Defib(rillator) failure (X)	▪ The “X” stands for a failure number from 1 to 3 ▪ The device is possibly not functioning correctly and must not be used. ▪ Contact sales and service partners.
Defibrillator failure (4)	▪ The device is possibly not functioning correctly and must not be used. ▪ Contact sales and service partners.
Defibrillator failure (P-Box)	▪ The device is possibly not functioning correctly and must not be used. ▪ Contact sales and service partners.

Alarm message/Notification	Explanation/measure
Defibrillator temperature high Defib temp. high (P-Box)	▪ The defibrillator was very frequently charged within a short period. ▪ Avoid too frequent internal discharges.
ECG cable (4 pole) loose 4-pole cable loose (P-Box)	Check if the 4 pole ECG cable is connected correctly to the patient box.
ECG cable (6 pole) loose 6-pole cable loose (P-Box)	Check if the complementary 6 pole ECG diagnostic cable is connected correctly to the patient box.
ECG electrodes off	▪ More than one ECG electrode is not connected to the patient. ▪ Check ECG electrodes.
EKG-Kabel lose	Check if the 4 pole ECG cable or the complementary 6 pole ECG diagnostic cable is connected correctly to the patient box.
GSM module comm. failure	▪ The GSM module is probably faulty. ▪ Contact sales and service partners.
IBP calibration error	▪ The calibration of one pressure channel has failed, because a higher pressure than atmospheric pressure was measured at one transducer. ▪ Repeat calibration.
Module restarts	▪ Alarm message shown on the display of the patient box. ▪ The patient box restarts due to a software error.
No defibrillation electrodes corPatch missing (P-box)	Connect corPatch electrodes or shock paddles to the therapy master cable of the corpuls3.
No ECG cable	▪ The corpuls3 is in AED mode with connected shock paddles and the 4 pole ECG monitoring cable is not connected to the patient box. ▪ Connect the 4 pole ECG monitoring cable.
No ECG cable (PACER)	▪ The pacer is stimulating, but there is no 4 pole ECG cable connected or individual ECG electrodes are loose. ▪ Check if the 4 pole ECG cable is connected correctly. ▪ Check ECG electrodes. ▪ Make sure that all contact clips are connected correctly to the electrodes and/or all ECG electrodes are correctly placed on the patient's skin.
No GSM PIN entered	▪ The PIN belonging to the SIM card has not been configured or ▪ no SIM card is present. ▪ Insert a SIM card and configure the PIN.
No pacer cable corPatch missing (P-box)	Connect the corPatch cable to the corpuls3 therapy master cable and place the corPatch electrodes on the patient.
Pacemaker failure (P-Box)	▪ The device is possibly not functioning correctly and must not be used. ▪ Contact sales and service partners.
Pacer active	▪ The pacer is stimulating ▪ Check if pacer therapy can be ended and if required, shut off pacer.

Alarm message/Notification	Explanation/measure
Pacer high impedance High impedance (P-Box)	▪ Make sure that the corPatch electrodes have full contact with the patient's skin. ▪ In case of excessive hair on the patient, shave the required area.
Paddle interface error	▪ The device is not functioning correctly and must not be used. ▪ Contact sales and service partners.
Replace battery (defib) Replace battery (monitor) Replace battery (P-Box)	▪ The device is possibly not functioning correctly and must not be used. ▪ Contact sales and service partners.
Self test failed Self test failed (P-Box)	The device is possibly not functioning correctly and may no longer be used. Contact sales and service partners.
SPO2 error (P-Box) CO2 error (P-Box) IBP error (P-Box)	▪ The module mentioned is faulty. ▪ Contact sales and service partners.
SYND CLK error (Defib) SYND CLK error (P-box)	▪ Automatic synchronisation in manual defibrillation mode does not work. No shock can be delivered. ▪ Contact sales and service partners.
Temperature measurement failed	▪ Temperature measurement could not be performed correctly. ▪ Check temperature sensor and its correct placement on the patient.
Test-resistor temperatur high Resistor temp. high (P-Box)	▪ Defibrillation was performed on the test contacts too frequently in succession. ▪ Avoid further defibrillations on the test contacts.

Table 10-21 Amendment to alarm messages and notifications

10.4 Amendment to Notifications and Information in the Protocol

The notifications marked with '- -' do not require further explanation, as they are self-explanatory. The measure to be taken is to follow the instruction given in the notification. The following notification texts can be shown on the display or are printed out in the protocol (in alphabetical order*):

* Due to translation, the sequence of the alarm messages in English differs from that in German

Alarm message/notification	Explanation/measure
activated (AED)	Time stamp and status indication in the protocol that the defibrillator has been activated in AED mode.
activated (MANUAL)	Time stamp and status indication in the protocol that the defibrillator has been activated in manual mode.
Charging not possible	▪ A technical error occurred.

Alarm message/notification	Explanation/measure
	▪ The temperature of the generator has exceeded a limit value due to a high amount of discharges. ▪ Allow the system to cool down in rest periods. ▪ If the error persists, contact sales and service partners.
Check modules	▪ If there is no connection between the monitoring unit and the patient box and/or the defibrillator/pacer at the time of switch-off or if there is a timing problem between the modules, this is communicated to the user by a message on the display. ▪ In this case, disconnect the the modules and check if all modules are switched off. If this is not so, switch off the respective modules via the On/Off key.
Check therapy electrodes	▪ The therapy electrodes are not connected correctly to the therapy master cable. ▪ Check the connection of the plugs and adjust if necessary. If the message persists, contact sales and service partners.
Circuit open - check pacer electrodes	▪ The corPatch electrodes are not connected correctly to the patient or have a too high resistance to the skin of the patient. A stimulation is not possible. ▪ Check if the electrodes are dried out or expired and if they are applied correctly to the patient.
Code changed	Confirmation that the access code has been successfully changed.
Code mismatch - retry?	▪ The verification of the new access code did not match the earlier entry. ▪ To repeat the process, confirm the prompt and enter the access code again.
Configuration loaded	--
Configuration reset	--
Configuration stored	--
Connect ECG cable	--
Connect pacer cable	User prompt to connect the therapy master cable to the therapy electrodes.
Connect therapy electrodes	Check the connecting plug of the therapy master cable. If necessary, connect the therapy electrodes with the connecting plug.

Connected, Sending fax	▪ Status message during fax transmission ▪ Connection to required number has been established. ▪ Fax transmission is running.
Connection not possible	▪ The number selected with the fax option cannot be dialed. ▪ Improve reception. ▪ Repeat procedure, possibly at a later time.
Continue pacing?	Confirmation prompt asking if the stimulation should be continued.
D-ECG fax sent	Confirmation that the D-ECG has been sent via fax.
Defibrillation only possible in manual defi mode	▪ User prompt to switch from AED to manual defibrillation mode. ▪ The therapy electrodes used are not authorised for AED mode.
Defibrillator analysis result; >>> [TEXT]	Event in the protocol, saving the result of the ECG analysis.
Defibrillator is charging	Notification that the defibrillator is charging.
DEMO Mode ON	▪ The DEMO mode is active. ▪ Check if curves and parameters are displayed.
Dialing... (signal level: [NUMBER] %)	▪ Dialing process of the fax option. ▪ Display of the signal strength of reception.
Do not touch or move patient	▪ The ECG analysis is being performed. ▪ Do not touch or move patient. ▪ Follow the instructions on the display.
Enter code: [NUMBER] [NUMBER] [NUMBER] [NUMBER]	User prompt to enter the access code.
Enter new Code: [NUMBER] [NUMBER] [NUMBER] [NUMBER]	User prompt to enter a new access code.
Error in device (BIM)	▪ The corpuls3 is not functioning correctly and must not be used. ▪ Contact sales and service partners.
Error in device (DEFI)	▪ The corpuls3 is not functioning correctly and must not be used. ▪ Contact sales and service partners.
Error in device (MAN-BIM)	▪ The corpuls3 is not functioning correctly and must not be used. ▪ Contact sales and service partners.
Error in device (PIF)	▪ The corpuls3 is not functioning correctly and must not be used. ▪ Contact sales and service partners.

Error in device (PIF)	▪ The corpuls3 is not functioning correctly and must not be used. ▪ Contact sales and service partners.
Event recorded	Confirmation that an event has been recorded.
Event recorded ([NUMBER].wav)	▪ Event in the protocol that an event has been recorded. ▪ There is a voice recording pertaining to the respective event.
Failure HES data transmission HES failure	▪ An error has occurred during data transmission of the ECG measuring and interpretation software HES®. ▪ Data transmission was not successful. ▪ Repeat procedure. ▪ If the data transmission fails repeatedly, contact sales and service partners.
FAX transfer failure	▪ An error has occurred during the fax transmission. ▪ The fax has not been transferred. ▪ Repeat fax transfer.
Fax transfer finished ([NUMBER] page(s) sent)	Confirmation that the fax has been successfully transferred with the indicated amount of pages.
GSM error: Connection not possible	▪ Possibly a wrong fax number has been dialed. ▪ Repeat dialing.
GSM error: Line is busy	▪ The dialed fax line is busy. ▪ Try to establish the fax connection at a later point in time.
GSM error: Lost modem control	▪ Switch off the corpuls3 and switch on again. ▪ If the message text is displayed permanently, contact sales and service partners.
GSM error: Network not available	▪ Signal strength of reception is too low. No connection can be established to the mobile communications network. ▪ If possible, improve reception according to location. ▪ Repeat procedure, possibly at a later time.
GSM error: No SIM card	▪ Check SIM card. ▪ Insert SIM card.
GSM error: SIM card error	▪ Check SIM card. ▪ Try re-inserting SIM card. ▪ If the error cannot be eliminated, contact the mobile communications operator or the sales and service partners.

GSM error: SIM card locked	▪ Check SIM card. ▪ Enter safety code for unlocking the SIM card (see instructions of operating company, e.g. Personal Unblocking Key (PUK)). ▪ If the SIM card cannot be unlocked, contact first the mobile communications operator and then the sales and service partners.
GSM error: Wrong GSM PIN	▪ The personal identification number (PIN) entered is wrong. ▪ Repeat.
High impedance	▪ The electrical resistance of the patient (impedance) is to high for the selected settings. An intensity for stimulation has been selected that cannot be reached with the impedance present. ▪ To perform a pacer therapy adaequate for the patient, a higher stimulation intensity must be selected. ▪ Increase intensity. ▪ Perform medical measures as needed.
IBP calibration failed	▪ Event in the protocol indicating that calibration of the invasive pressure channel has failed. ▪ Repeat calibration of the indicated pressure channel.
Impedance high	Make sure that the corPatch electrodes have full contact with the patient's skin. In case of excessive hair, shave the required area on the patient's skin.
Initialising GSM modem...	Status indication during fax transmission.
Invalid - retry?	--
Keyboard locked	Keyboard lock has been engaged.
Keyboard locked - press and hold HOME to unlock	--
Keyboard unlocked	Keyboard lock has been disengaged.
Line is busy	The dialed fax line is busy.
Lock keyboard?	--
Logging onto the network	▪ Status message of fax transmission. ▪ The GSM module is logging onto the mobile communications network.
Mission end	Event in the protocol indicating the ending time of the device mission
Mission start	Event in the protocol indicating the starting time of the device mission
Module restarts	The module restarts due to an internal error.

New Code invalid - retry?	User prompt to re-enter the new access code, if the repetition was wrong.
New Module - start pairing?	▪ Two modules have been connected that do not have a connection authorisation (Pairing). ▪ Confirm if these modules are to receive a connection authorisation and the existing connection authorisation should be deleted.
NIBP result: [NUMBER] / [NUMBER] ([NUMBER]) mmHg	Result of the NIBP measurement in the protocol.
No connection to defibrillator unit	▪ The wireless communication between defibrillator and monitoring unit/patient box is interrupted or could not be established: Make sure that the distance between the modules is no more than 10 m and that no obstacles impede the wireless communication. If needed, use the **corpuls**^{3}as a compact device. ▪ The communication between the connected modules defibrillator and monitoring unit/patient box is interrupted or could not be established: Check if one of the infrared interfaces is covered or dirty.
No connection to P box	▪ The wireless communication between patient box and monitoring unit/defibrillator is interrupted or could not be established: Make sure that the distance between the modules is no more than 10 m and that no obstacles impede the wireless communication. If needed, use the **corpuls**^{3}as a compact device. ▪ The communication between the connected modules patient box and monitoring unit/defibrillator is interrupted or could not be established: Check if one of the infrared interfaces is covered or dirty.
No ECG cable in DEMAND mode	For operation of the pacer in DEMAND mode the 4 pole ECG monitoring cable has to be connected to the patient and to the **corpuls**^{3}.
No PIN available	For operating the SIM card in the GSM module it is necessary to enter a 4 figure PIN in the configuration menu.
No SIM card	--
Overheated - pacing impossible	▪ A technical error occurred. ▪ The temperature of the generator has exceeded a limit value. ▪ Allow the system to cool down in rest periods. If the error persists, contact sales and service partners.
Pacer active	The pacer is stimulating.

Pacer active - continue anyway?	Confirmation prompt asking if the stimulation should be interrupted and the device should switch to manual or AED defibrillation mode.
Pacer active - D-ECG not available	▪ The pacer of the corpuls3 is activated and the selected intensity is more than 0 mA. ▪ A D-ECG cannot be performed under these circumstances.
Pacer active - Power OFF?	Confirmation prompt asking if the system should shut down although the pacer is stimulating.
Pacer continue	--
Pacer error - pacing OFF	▪ An error occurred during pacer therapy. ▪ The pacer is switched off. Stimulation is interrupted. ▪ Treat patient and take measures as needed. ▪ Contact sales and service partners.
Pacer off	Confirmation that the pacer has been switched off and is not stimulating.
Pacer on [NUMBER] /min, [NUMBER] mA, mode [TEXT]	▪ Status indication of a performed pacer therapy in the protocol. ▪ The stimulation frequency, intensity and the selected pacer mode are indicated.
Pacing	Stimulation via the pacer is active.
Pairing failed - retry?	▪ Connection authorisation (Pairing) has failed. ▪ Pairing has to be performed again so that the modules can be used together. ▪ Confirmation of the question if the pairing should be performed again is necessary. ▪ Confirm in order to repeat pairing. ▪ For further details see chapter 3.2.1. ▪ If pairing fails repeatedly, the device is possibly not functioning correctly and must not be used. Contact sales and service partners.
Pairing failed - Software version conflict	▪ Connection authorisation (Pairing) has failed. ▪ The required modules cannot be connected due to different software versions. ▪ For further details see chapter 3.2.1. ▪ The device is not functioning correctly and must not be used. ▪ Contact sales and service partners.
Pairing result:	Status message after connection authorisation (Pairing) in the protocol.
Pairing successful	▪ The connection authorisation has been issued successfully. The modules can be used together.

Pause pacing?	Confirmation prompt asking if the stimulation should be interrupted.
Perform CPR	Perform ventilation and cardiac massage (cardio-pulmonary resuscitation) for as long as the device shows the message "**Perform CPR**".
Power down	▪ User prompt to switch off the device. ▪ After confirmation the device shuts down completely.
Power OFF?	Confirmation prompt asking if the system shold be shut down..
Ready for shock	Message that the **corpuls3** is ready to deliver a shock in defibrillation mode.
Recording failed - Check CF card	▪ Data recording is not possible. ▪ Check if the CompactFlash® card is inserted correctly.
Re-enter new Code: [NUMBER] [NUMBER] [NUMBER] [NUMBER]	User prompt to re-enter the new access code.
Reset user code?	Confirmation prompt asking if the access code of the user level should be reset to factory settings.
Select Energy	--
Select frequency	--
Select intensity	--
Select intensity/frequency	--
Select mode	User prompt to select the pacer mode.
Sending fax (page [NUMBER])...	▪ Status indication during fax transmission. ▪ The number of already sent pages is shown in brackets.
Sending fax...	Status indication during fax transmission.
Shock [NUMBER] J ([NUMBER] J), [NUMBER] Ohm (%s)	▪ Time stamp and status indication of a performed defibrillation in the protocol. ▪ The selected energy, the effectively released energy (in brackets) and the impedance in Ohm are indicated. Indication of the defibrillation mode used.
Shock aborted	The shock could not be delivered. If necessary, repeat shock release.
Shock not recommended	▪ The result of the ECG analysis indicates that a shock is not recommended. ▪ Take measures as needed. If necessary, continue cardio-pulmonary resuscitation.
Shock performed	▪ Defibrillation energy has been released. Check vital signs and continue CPR if necessary.

Shock recommended	▪ Defibrillation is recommended. ▪ Perform defibrillation immediately.
Short circuit - check electrodes	▪ The therapy electrodes have to be placed at a sufficient distance from each other. ▪ Make sure that the therapy electrodes do not touch.
SIM card authorisation...	▪ Status message of fax transmission. ▪ Wait for authorisation of the SIM card in the mobile communications network.
SIM error	▪ Repeat procedure. ▪ If the error occurs again, check if the SIM card is inserted correctly. ▪ If the error occurs again, check the SIM card in another device. ▪ Contact sales and service partners.
Start analysis	User prompt to start ECG analysis in AED mode.
Start ECG	Starting time of the recorded ECG in the protocol.
Start new mission record?	By confirming, a new data record is created on the CF card.
Stop ECG	Ending time of the recorded ECG in the protocol.
Switch off pacer?	--
System Power Down in [NUMBER] sec	Count-down indicating the remaining time in seconds until the system shuts down.
Therapy electrodes loose	Connect corPatch electrodes or shock paddles to the therapy master cable of the corpuls3.
Unlock keyboard?	--
User [TEXT] logged in successfully	Confirmation that the user has successfully logged in.
Wrong therapy electrodes	Connect the corPatch cable to the therapy master cable of the corpuls3 and place the corPatch electrodes on the patient's skin.

Table 10-22 Amendment to notifications in the message line